WHAT IS CLAIMED IS:

1.   A system for data monitoring and recovery (DMR), the system comprising:

one or more first DMR agents, each first DMR agent residing at one of one or more receptors that are each operable to receive first data units from one or more remote units, the first DMR agent being operable to generate first tracking reports of the first data units received at the receptor and communicate the first tracking reports to a DMR manager;

one or more second DMR agents, each second DMR agent residing at one of one or more centrals that are each operable to receive first data units from one or more receptors and extract second data units from the first data units for communication to one or more interface data processors (IDPs), the second DMR agent being operable to:

generate second tracking reports of the first data units received at the central and communicate the second tracking reports to the DMR manager; and

generate delivery reports of the second data units extracted at the central and communicate the delivery reports to the DMR manager, the delivery reports indicating missing second data units that should have been received at the central, but were not; and

the DMR manager, operable to:

using the delivery reports, identify the missing second data units;

using one or more of the tracking reports:

map the missing second data units to one or more first data units; and

determine a best source for retransmission of the first data units mapped to the missing second data units;

generate a retransmit request for the first data units mapped to the missing second data units; and

communicate the retransmit request to the best source.

2.   The system of Claim 1, wherein the first data units are virtual channel data units (VCDUs) and the second data units are application packets (APs) defined in one or more Consultative Committee for Space Data Systems (CCSDS) protocols.

3.   The system of Claim 1, wherein:

if a central has stored copies of the first data units mapped to the missing second data units, the best source is the central;

if no central has stored copies of the first data units mapped to the missing second data units, but a receptor does, the best source is the receptor; and

if no central and no receptor has stored copies of the first data units mapped to the missing second data units, but a remote unit does, the best source is the remote unit.

4.   The system of Claim 1, wherein the retransmit request comprises a new retransmit request, the DMR manager being operable to:

determine whether the new retransmit request would overlap or be at least substantially adjacent an already pending retransmit request; and

if the new retransmit request would overlap the already pending retransmit request, modify the already pending retransmit request to include the new retransmit request instead of generating the new retransmit request.

5.   The system of Claim 1, wherein the DMR manager is operable to receive and respond to a retransmit request from one or more IDPs.

6.   The system of Claim 1, wherein the DMR manager is operable to compile a plurality of tracking reports into a record for mapping missing second data units to first data units and determining best sources for retransmission of first data units mapped to missing second data units.

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7.   The system of Claim 1, wherein the DMR manager, on a periodic basis, runs queries of a database of stored delivery reports to identify missing second data units.

10   8.   The system of Claim 1, wherein:
the receptor is operable to:
            extract first data units from one or more streams of first data units;
            add one or more extensions to the first data units extracted from the streams of first data units;
15   store first data units received at the receptor for subsequent recovery operations; and
            generate log files of first data units received at the receptor; and
the central comprises a data-handling node (DHN) operable to combine a plurality of streams of first data units with each other.

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9.   The system of Claim 1, wherein the DMR agent and the DMR manager operate outside a substantially real-time data path through the receptor and the central.

25   10.   The system of Claim 1, wherein a remote unit is a spacecraft.

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11.   A method for data monitoring and recovery (DMR), the method comprising:

generating first tracking reports of first data units received at one or more receptors from one or more remote units;

5   generating second tracking reports of first data units received at one of one or more centrals;

generating delivery reports of second data units extracted at the central from the first data units received at the central;

using the delivery reports, identifying missing second data units that should

10   have been received at the central, but were not;

using one or more of the tracking reports:

mapping the missing second data units to one or more first data units; and

determining a best source for retransmission of the first data units

15   mapped to the missing second data units;

generating a retransmit request for the first data units mapped to the missing second data units; and

communicating the retransmit request to the best source.

20   12.   The method of Claim 11, wherein the first data units are virtual channel data units (VCDUs) and the second data units are application packets (APs) defined in one or more Consultative Committee for Space Data Systems (CCSDS) protocols.

13.   The method of Claim 11, wherein:

if a central has stored copies of the first data units mapped to the missing second data units, the best source is the central;

if no central has stored copies of the first data units mapped to the missing second data units, but a receptor does, the best source is the receptor; and

if no central and no receptor has stored copies of the first data units mapped to the missing second data units, but a remote unit does, the best source is the remote unit.

14.   The method of Claim 11, wherein:

the retransmit request comprises a new retransmit request; and

the method comprises:

determining whether the new retransmit request would overlap or be at least substantially adjacent an already pending retransmit request; and

if the new retransmit request would overlap the already pending retransmit request, modifying the already pending retransmit request to include the new retransmit request instead of generating the new retransmit request.

15.   The method of Claim 11, comprising compiling a plurality of tracking reports into a record for mapping missing second data units to first data units and determining best sources for retransmission of first data units mapped to missing second data units.

16.   The method of Claim 11, comprising running, on a periodic basis, queries of a database of stored delivery reports to identify missing second data units.

17.   The method of Claim 11, wherein:

the receptor is operable to:

extract first data units from one or more streams of first data units;

add one or more extensions to the first data units extracted from the

5   streams of first data units;

store first data units received at the receptor for subsequent recovery

operations; and

generate log files of first data units received at the receptor; and

the central comprises a data-handling node (DHN) operable to combine a

10   plurality of streams of first data units with each other.

18.   The method of Claim 11, being executed outside a substantially real-

time data path through the receptors and the centrals.

15   19.   The method of Claim 11, wherein a remote unit is a spacecraft.

20.   Logic for data monitoring and recovery (DMR), the logic encoded in media and when executed, operable to:

generate first tracking reports of first data units received at one or more receptors from one or more remote units;

5   generate second tracking reports of first data units received at one of one or more centrals;

generate delivery reports of second data units extracted at the central from the first data units received at the central;

using the delivery reports, identify missing second data units that should have

10   been received at the central, but were not;

using one or more of the tracking reports:

map the missing second data units to one or more first data units; and

determining a best source for retransmission of the first data units mapped to the missing second data units;

15   generate a retransmit request for the first data units mapped to the missing second data units; and

communicate the retransmit request to the best source.

21.   The logic of Claim 20, wherein the first data units are virtual channel

20   data units (VCDUs) and the second data units are application packets (APs) defined in one or more Consultative Committee for Space Data Systems (CCSDS) protocols.

22.   The logic of Claim 20, wherein:

if a central has stored copies of the first data units mapped to the missing second data units, the best source is the central;

if no central has stored copies of the first data units mapped to the missing second data units, but a receptor does, the best source is the receptor; and

if no central and no receptor has stored copies of the first data units mapped to the missing second data units, but a remote unit does, the best source is the remote unit.

23.   The logic of Claim 20, wherein:

the retransmit request comprises a new retransmit request; and

the logic is operable to:

determine whether the new retransmit request would overlap or be at least substantially adjacent an already pending retransmit request; and

if the new retransmit request would overlap the already pending retransmit request, modify the already pending retransmit request to include the new retransmit request instead of generating the new retransmit request.

24.   The logic of Claim 20, operable to compile a plurality of tracking reports into a record for mapping missing second data units to first data units and determining best sources for retransmission of first data units mapped to missing second data units.

25.   The logic of Claim 20, operable to run, on a periodic basis, queries of a database of stored delivery reports to identify missing second data units.

26.   The logic of Claim 20, wherein:

the receptor is operable to:

 extract first data units from one or more streams of first data units;

 add one or more extensions to the first data units extracted from the streams of first data units;

 store first data units received at the receptor for subsequent recovery operations; and

 generate log files of first data units received at the receptor; and

the central comprises a data-handling node (DHN) operable to combine a plurality of streams of first data units with each other.

27.   The logic of Claim 20, executable outside a substantially real-time data path through the receptors and the centrals.

28.   The logic of Claim 20, wherein the remote unit is a spacecraft.

29.　　A system for data monitoring and recovery (DMR), the system comprising:

　　means for generating first tracking reports of first data units received at one or more receptors from one or more remote unit;

5　　　　means for generating second tracking reports of first data units received at one of one or more centrals;

　　means for generating delivery reports of second data units extracted at the central from the first data units received at the central;

　　means for, using the delivery reports, identifying missing second data units

10　　that should have been received at the central, but were not;

　　means for, using one or more of the tracking reports:

　　　　mapping the missing second data units to one or more first data units; and

　　　　determining a best source for retransmission of the first data units

15　　　　mapped to the missing second data units;

　　means for generating a retransmit request for the first data units mapped to the missing second data units; and

　　means for communicating the retransmit request to the best source.